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# Priming the **Green Heating** and **Cooling Market** for *Take-Off*

RENEWABLE ENERGY DEPLOYMENT INITIATIVE (REDI)



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**STRATEGIC  
BUSINESS PLAN 9-51  
2004–2007**



Natural Resources  
Canada

Ressources naturelles  
Canada

Canada



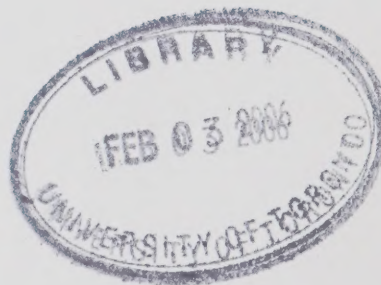
This digital mosaic of Canada, produced by Natural Resources Canada (Canada Centre for Remote Sensing), is a composite of individual satellite images. The colours reflect differences in the density of vegetation cover: bright green for dense vegetation in the humid southern regions; yellow for semi-arid and mountainous regions; brown for the far north where vegetation cover is very sparse; and white for the Arctic regions.

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## Our Message

We are pleased to present *Priming the Green Heating and Cooling Market for Take-Off*, the Strategic Business Plan for the Renewable Energy Deployment Initiative, known as REDI. This plan is dubbed “9-51” to reflect the nine years and \$51 million that the Government of Canada has invested in “green” heating and cooling (GH&C) solutions.

We prepared this first REDI Strategic Business Plan 9-51 as a vehicle for a strong commitment to a rigorous planning, executing and reporting process. We listened to the ideas and expectations of our staff, partners and stakeholders. Thinking systemically about our challenges and opportunities, as well as the insights from the 2003 program evaluation and the 2004 industry consultations, we crafted our vision, mission and strategic thrusts with measurable actions.

REDI Strategic Business Plan 9-51 outlines the new direction that the program will take over 2004–2007. This new direction builds upon REDI’s past successes. Since its inception in 1998, REDI has matured as a program. More importantly, REDI has helped move GH&C solutions from relative infancy to today’s preparation for market take-off. As a result, GH&C solutions have shown their potential to become an even more important contributor to sustainable energy savings and reductions in greenhouse gas emissions, going beyond what one can achieve through energy efficiency measures alone. We are proud of these successes and milestones.

They are all due to the creativity and dedication of REDI’s team and its partners, such as the Association of Canadian Community Colleges, the Canadian Bioenergy Association, the Canadian GeoExchange Coalition, the Canadian Solar Industries Association, the Earth Energy Society of Canada, Énergie Solaire Québec and the Federation of Canadian Municipalities.

So what is the new direction for REDI? We will focus our resources on directly encouraging a greater uptake of GH&C systems. The timing is right. REDI remains the right program to use, and stakeholders are ready to respond.

You will see this decision reflected in REDI's vision, its renewed mission and its targeted 6600 GH&C systems by 2007. You will see this decision being put into action through the four strategic thrusts in the plan. Of particular note, the highest priority is placed upon market incentives, as was suggested in our consultations with stakeholders and partners in 2004.

Our plan also outlines our commitments to fostering sound management practices within REDI. We will closely monitor our progress in meeting well-defined targets and outcomes, and regularly report our results to Natural Resources Canada and our stakeholder community. We welcome your collaboration in making this plan happen and look forward to your continued partnership with us in priming the GH&C market for take-off over the next three fiscal years.

Tom Wallace  
*Director General*  
*Electricity Resources Branch*

Lisa Jackson  
*Acting Director*  
*Renewable and*  
*Electrical Energy Division*



## Acronyms and Symbols

<b>ACCC</b>	Association of Canadian Community Colleges
<b>CANBIO</b>	Canadian Bioenergy Association
<b>CanSIA</b>	Canadian Solar Industries Association
<b>CETC</b>	CANMET Energy Technology Centre
<b>CGC</b>	Canadian GeoExchange Coalition
<b>CO<sub>2</sub>e</b>	carbon dioxide equivalent
<b>CSA</b>	Canadian Standards Association
<b>EESC</b>	Earth Energy Society of Canada
<b>ESQ</b>	Énergie Solaire Québec
<b>FCM</b>	Federation of Canadian Municipalities
<b>GH&amp;C</b>	green heating and cooling
<b>GHG</b>	greenhouse gas
<b>GJ</b>	gigajoule
<b>GSHP</b>	ground-source heat pump
<b>kt</b>	kilotonne
<b>NRCan</b>	Natural Resources Canada
<b>OEE</b>	Office of Energy Efficiency
<b>REDI</b>	Renewable Energy Deployment Initiative
<b>REED</b>	Renewable and Electrical Energy Division
<b>SESCI</b>	Solar Energy Society of Canada Inc.



## Our Guiding Statements

The strategy to prime the green heating and cooling (GH&C) market for take-off, elaborated in this REDI strategic business plan, is guided by REDI's vision, mission and values. It builds on past successes and lessons learned and on the analysis of REDI's situation and environment.

### Delivering on Management Responses to 2003 REDI Evaluation

<b>Our Vision –</b> What we want to become	A leading catalyst for GH&C deployment in Canada.
<b>Our Mission –</b> Why we exist	To stimulate renewable energy deployment from GH&C sources, which can help Canada diversify its energy supply mix, reduce its greenhouse gas emissions and contribute to a future of sustainable energy.
<b>Our Values –</b> What we believe in	Professionalism, stewardship, honesty, respect and continuous improvement.  These core values of Natural Resources Canada (NRCAN) guide REDI's decision making and form the basis for accountability to Canadian citizens, our clients and internal stakeholders.
<b>Our Operating Principles –</b> What we stand for	The following operating principles define the business standards, beliefs and values of NRCAN and, therefore, of REDI: <ul style="list-style-type: none"> <li>• Strong leadership is essential.</li> <li>• People are our principal strength.</li> <li>• Effective planning helps us to improve.</li> <li>• Creativity and innovation are key to our future.</li> <li>• The Canadian public interest is paramount.</li> <li>• Quality service to clients is our standard.</li> <li>• Effective communication is a shared responsibility.</li> <li>• Cooperation is the foundation of our success.</li> </ul>
<b>Our Targeted Output and Outcome</b>	To influence, by 2007, the deployment of 600 active solar thermal systems and high-efficiency/low-emissions biomass combustion systems, along with 6000 ground-source heat pump systems.  This translates into a reduction of 0.284 megatonnes of carbon dioxide equivalent, which is equal to removing from our roads about 71 000 typical late-model, mid-sized cars that are being driven 20 000 kilometres per year.

#### REDI's Three Main Pillars

- *Market Stimulation:* Providing direct financial incentives for installation
- *Infrastructure Support:* Strengthening GH&C supply capacity
- *Market Development:* Promoting awareness and outreach

## What Is Green Heating and Cooling?

*Green heating and cooling, or GH&C, refers to thermal space heating and/or cooling as well as the heating of potable or service water using renewable energy from the sun, the earth and biomass.*

## REDI-Supported GH&C Systems

- Active solar water heating systems, including evacuated tube systems
- Active solar air heating systems
- High-efficiency/low-emissions biomass combustion systems with a total capacity of between 75 and 2000 kilowatts
- Ground-source heat pump (GSHP) systems (not eligible for direct financial incentives)

The Renewable Energy Deployment Initiative (REDI) is a unique program that focuses on green heating and cooling (GH&C) and its benefits to Canadians, the GH&C industries and all levels of government. REDI contributes to reductions in air pollution and greenhouse gas (GHG) emissions as well as to sustainable energy use, sustainable jobs and a better quality of life. REDI aims to reduce 0.284 megatonnes of carbon dioxide by 2007.

Since its inception, REDI has aimed to influence awareness of, and attitudes towards, GH&C solutions and to foster their adoption. As such, REDI is designed to encourage investments in GH&C systems for buildings, to help develop a dynamic and self-sustaining renewable energy industry in Canada and to raise public awareness of renewable energy. REDI supports the Climate Change Plan for Canada and complements Natural Resources Canada's (NRCan's) Sustainable Development Strategy.

REDI was announced in December 1997 and came into effect on April 1, 1998, as a three-year, \$12-million program. It was then extended into a second three-year cycle, from 2001 to 2004, with \$14 million in additional funding, including \$2 million for extended "REDI for Business, Industry and Institutions." In 2004, REDI was extended for a third three-year cycle, from 2004 to 2007, with another \$25 million in funding. Overall, REDI represents a nine-year, \$51-million program investment by the Government of Canada.

REDI's main pillars are market stimulation, infrastructure support and market development. The marketplace is stimulated by the provision of financial incentives for eligible renewable energy systems. The GH&C infrastructure is strengthened through training, standards and certification activities that increase the GH&C industry's capacity to supply and install reliable systems. Marketing activities conducted with allies and industry partners improve consumers' awareness and influence their decision making.

In this third cycle of REDI, the relative priority among its three main pillars shifts from market development towards market stimulation. This shift corresponds to the take-off stage that the GH&C market aims to enter in the next three years. It also builds on the program's impacts to date. More details about REDI are available on the Web site at [www.nrcan.gc.ca/redir](http://www.nrcan.gc.ca/redir) or by telephone at 1 877 722-6600.



### REDI Is a Proven Catalyst for Maturing the Green Heating and Cooling Marketplace

Canadians spend almost \$114 billion per year on energy to heat and cool their homes and offices, and to operate their appliances, cars and industrial processes. This represents 10.4 percent of the country's gross domestic product. Space and water heating, both within the scope of REDI, make up 80.2 percent of residential energy use. From 1990 to 2001, Canada's GHG intensity increased by 15.3 percent. In the face of such increases and Canada's Kyoto commitments, GH&C solutions continue to offer a promising avenue for sustainable energy savings and GHG reductions, beyond those achievable by energy efficiency initiatives alone. They can offer economic, ecological and social benefits to Canadian consumers.

Today, GH&C solutions represent only a fraction of 1 percent of the Canadian heating and cooling market. Although this percentage has grown steadily since REDI's inception, the market take-up of GH&C solutions is still relatively small. There remains a huge untapped potential in Canadian existing and new building stock suitable for sustainable use of thermal energy.

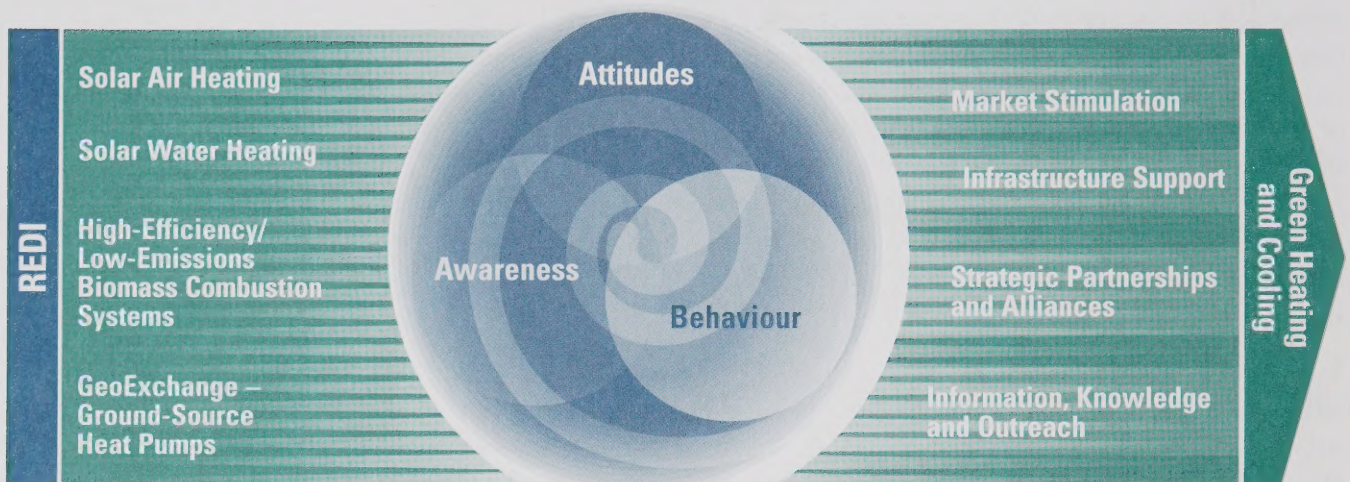
As available data are mostly outdated, REDI will systematically collect, analyse and report accurate information on GH&C market size, potential and growth in this third program cycle. This will help measure REDI's impact in the market segments shown below.

**Number of REDI-Supported Installations in Identified Markets**

Agricultural Operations	102	Manufacturers	53	Institutions	23
Apartments / Office Buildings	18	Services	15	Hotels / Motels / Inns	14
Swimming Pools	12	Recreational Centres	10	Federal Facilities	6
Warehouses	6	Retail	4	Car Washes	2

## REDI Has a Refocused Management Model

As captured in the management model (see figure below), awareness, attitudes and behaviour go hand in hand with developing and maturing the GH&C marketplace. Through its investments in market stimulation, infrastructure support and market development, REDI has not only increased awareness, but has also begun to influence the attitudes and behaviour of the key players – buyers, sellers and other stakeholders – in the GH&C marketplace.



## REDI Is Contributing to Increased Awareness Through . . .

- Studies to identify target markets
- Information pieces and communication products, such as
  - buyers' guides and promotional materials
  - CD-ROMs, videos, case studies and Web-based information
  - marketing strategies
- Renewable energy associations, and Aboriginal, environmental and other stakeholders





## REDI Is Contributing to More Positive Attitudes, as Demonstrated by . . .

- The emergence of industry associations, such as the Canadian Bioenergy Association (CANBIO) and the Canadian GeoExchange Coalition (CGC). The latter is a fine example of an innovative partnering approach.
- The expanding communities of stakeholders, and their receipt of information to influence the GH&C marketplace
- The updates of accreditation and standards
- Twice as many information requests and Web site visits since 2001
- The increased number of applications for the REDI incentive, from 13, 39 and 78 in the first three years to 88, 114 and 169 in the fourth, fifth and sixth years
- The strengthening of industrial infrastructure (as shown in the table below)

REDI in Action: GH&C Industry Infrastructure		
Active Solar Thermal	Clean Biomass Combustion	Earth Energy / GeoExchange
<ul style="list-style-type: none"> <li>• Represented by the Canadian Solar Industries Association (CanSIA), the Solar Energy Society of Canada Inc. (SESCI) and Énergie Solaire Québec (ÉSQ), with about 450 members</li> <li>• Over 20 Canadian manufacturers or suppliers, compared with a few in 1998</li> <li>• Twenty-five years in industrial, commercial, institutional and residential markets</li> </ul>	<ul style="list-style-type: none"> <li>• CANBIO, established in 2002, and with about 40 members</li> <li>• Eight manufacturers or suppliers compared with two in 2001</li> <li>• Two years' operation in industrial, commercial and institutional markets</li> <li>• Declining incentive over 2004–2007</li> </ul>	<ul style="list-style-type: none"> <li>• The Earth Energy Society of Canada (EESC) and CGC with about 30 members</li> <li>• Few Canadian manufacturers</li> <li>• Six years in institutional and residential markets for EESC; two years for CGC</li> <li>• CGC incorporated to speed GSHP systems' uptake through utility-backed options</li> </ul>
Green Heating and Cooling Industry		
<ul style="list-style-type: none"> <li>• Moving from a fragmented and weak common voice to GreenHeat Partnership and other coalitions</li> <li>• Confronting the challenge of creating a level playing field and relying more on funding for growth</li> <li>• Promoting active solar thermal, cleaner biomass combustion and geoexchange systems</li> </ul>		

## REDI Is Contributing to Changes in Behaviour

Since 1998, REDI has steadily supported 265 GH&C systems (as shown in the graph on page 6) for cumulative GHG emissions reductions and energy savings.

- These systems generated an estimated cumulative reduction of 85.5 kilotonnes (kt) of CO<sub>2</sub>e and about 1.42 million gigajoules (GJ) per year of energy savings.
- \$6.2 million of REDI contributions leveraged about \$34.5 million of corporate investments to yield a total of \$40.7 million of capital expenditures.
- \$3.08 million of REDI incentives leveraged \$9.9 million from active solar thermal systems' corporations.
- The CGC was launched to transform the GH&C market with 6000 ground-source heat pump (GSHP) systems by 2007.

### REDI in Action: Value Proposition of the Canadian GeoExchange Coalition

#### Excellent Features

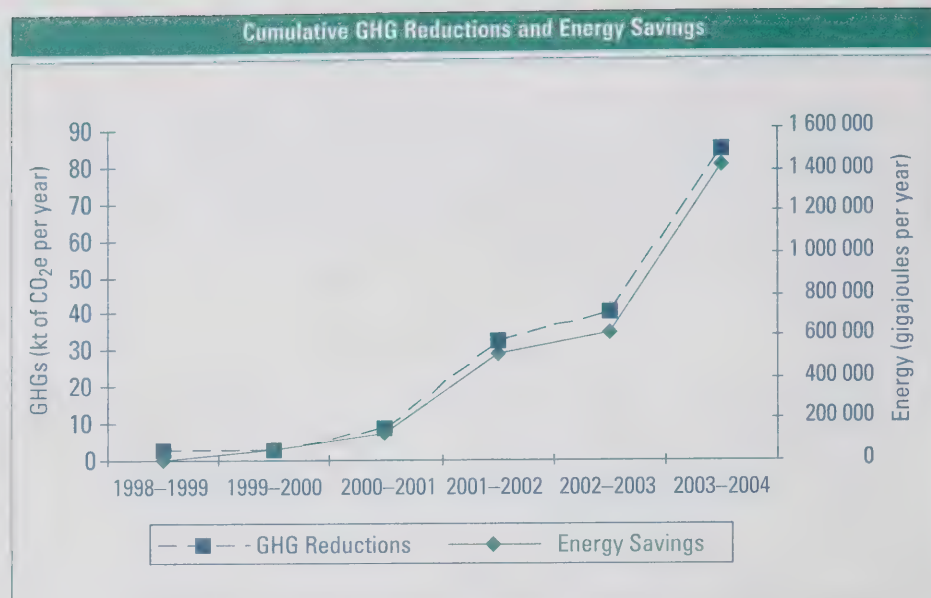
- Utility-led GH&C marketing approach
- Participation of influential energy utilities
- Conduit for mass uptake of GSHP systems
- Representing over 5 million energy customers

#### Benefits

- Higher energy savings for consumers
- Additional source of income for utilities
- Dollar and experience leveraging
- Lasting impact on a robust GSHP systems market

### REDI in Action: The Clean Biomass Combustion Systems' Success Story

- About 30 percent of REDI installations yielded
  - over 93 percent of GHG reductions
  - about 70 percent of corporate investments
  - 79.08 kt of GHG reductions per year
  - 1.33 million GJ of energy savings per year
- A \$3.09-million REDI investment leveraged \$24.7 million in private sector expenditures.
- A segment of the clean biomass market is now more self-sustaining, and new niches are being pursued.



### REDI Is Serving a Wide Community of Stakeholders

REDI interacts with a variety of stakeholders, ranging from the Minister of Natural Resources Canada and senior officials internal to NRCAN to other governmental departments, external partners and allies.

REDI collaborates with partners from renewable energy industry associations such as CanSIA, SESCI, ÉSQ and EESC. It also engages strategic allies, such as the Association of Canadian Community Colleges (ACCC) and the Federation of Canadian Municipalities, just to name a few, to further promote GH&C. REDI works with non-governmental organizations, such as The Earth Festival Society, the Energy Action Council of Toronto, Peterborough Green-Up and the Kahnawake Environment Office, to increase awareness of, and experience with, GH&C systems.

Of particular importance is the catalytic role of REDI in establishing CANBIO, CGC, ACCC's Renewable Energy Advisory Committee on Training and the REDI Solar Thermal Advisory Committee.

Through memoranda of agreement and other arrangements, REDI shares resources and cooperates with the CANMET Energy Technology Centre (CETC) through such programs as RETScreen® International, the Renewable Energy for Remote Communities Program and the Renewable Energy Technologies Program. REDI does the same with the Office of Energy Efficiency (OEE) through such programs as the Commercial Building Incentive Program, the Canadian Industry Program for Energy Conservation, the Federal Buildings Initiative and the Energy Innovators Initiative.



## Environmental Scan: Confronting Challenges and Seizing Opportunities

The environmental scan for REDI identified and analysed a number of drivers, trends, challenges and opportunities (as shown in the table below). The information is drawn from internal research and analysis, REDI's evaluation, and stakeholder and staff consultations. Together, they influenced the program assessment and stocktaking that set the stage for REDI's future directions, priorities and strategic thrusts.

Drivers	Trends
<ul style="list-style-type: none"> <li>• 2003 REDI evaluation</li> <li>• 2004 stakeholder consultations</li> <li>• Volatile oil and gas prices</li> <li>• Power blackout in summer 2003</li> <li>• Climate Change Plan for Canada, released in 2002; Budget 2003; and Budget 2004</li> <li>• Introduction of renewable portfolio standards in provinces and territories</li> </ul>	<ul style="list-style-type: none"> <li>• Surging GH&amp;C uptake in 2003 and 2004</li> <li>• Increasing GH&amp;C contribution to GHG savings</li> <li>• Growing pool of renewable energy suppliers and practitioners</li> <li>• More diversity of renewable energy options and national coverage</li> <li>• Increased investments in climate change and sustainable development solutions</li> <li>• Renewed public environmental awareness</li> </ul>
Challenges	Opportunities
<ul style="list-style-type: none"> <li>• Level playing field with fossil fuel technologies</li> <li>• Cost competitiveness with conventional sources</li> <li>• Awareness, attitude and behaviour changes</li> <li>• Full cost accounting beyond short-term payback</li> <li>• Public leadership and industry fragmentation</li> </ul>	<ul style="list-style-type: none"> <li>• Long-term GH&amp;C strategic plan</li> <li>• Innovative financing options</li> <li>• Pursuit of new niche markets</li> <li>• Life cycle costing in GH&amp;C project evaluation</li> <li>• Mass purchase of GH&amp;C systems</li> <li>• Preparation of industry talent pool</li> </ul>

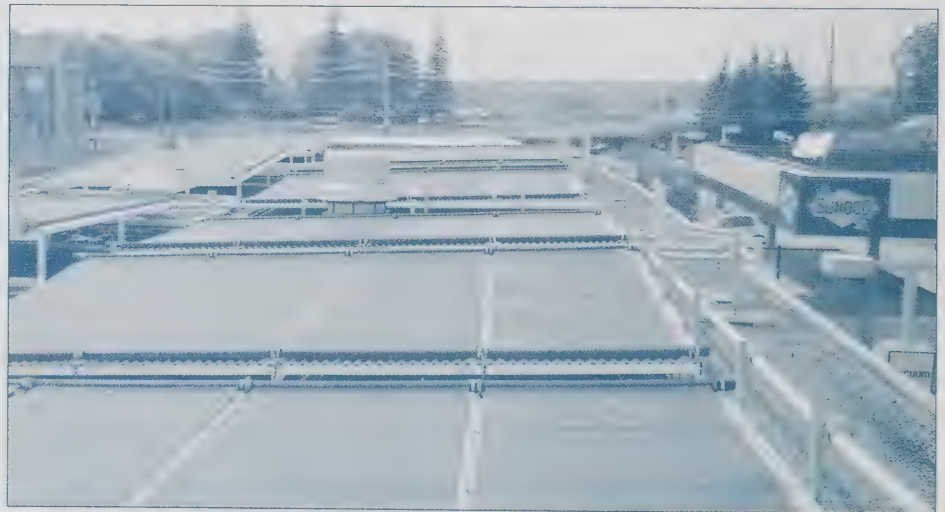
### External Factors

Canada is not alone in facing renewable energy deployment issues. A 2001 report of the G8 Renewable Energy Task Force encouraged governments to introduce measures that increase the use of renewable energy systems. The 2002 World Summit on Sustainable Development, held in Johannesburg, outlined areas of potential action on greater renewable energy uptake. The International Conference for Renewable Energies, held in June 2004 in Bonn, endorsed the commitment to promote coherent renewable energy policies around the globe to further level the playing field.

## Internal Factors

REDI addresses the first element of the Speech From the Throne of October 2004 by investing in people's training and awareness to sharpen Canada's source of creativity and economic strength. REDI demonstration activities confront the challenge of turning more Canadians' bright ideas into quality jobs and potential knowledge, product and service exports. Budgets 2003 and 2004 have dedicated considerable resources to climate change and environment protection solutions.

REDI enhances regional and rural economic development through its renewable energy training and renewable energy systems' uptake, particularly in Canada's North. NRCan's Sustainable Development Strategy 2004 and Canada's Northern Strategy present opportunities to prime GH&C for a market take-off. REDI can help Canada better meet its international commitments within the Kyoto Protocol, which entered into force on February 16, 2005.



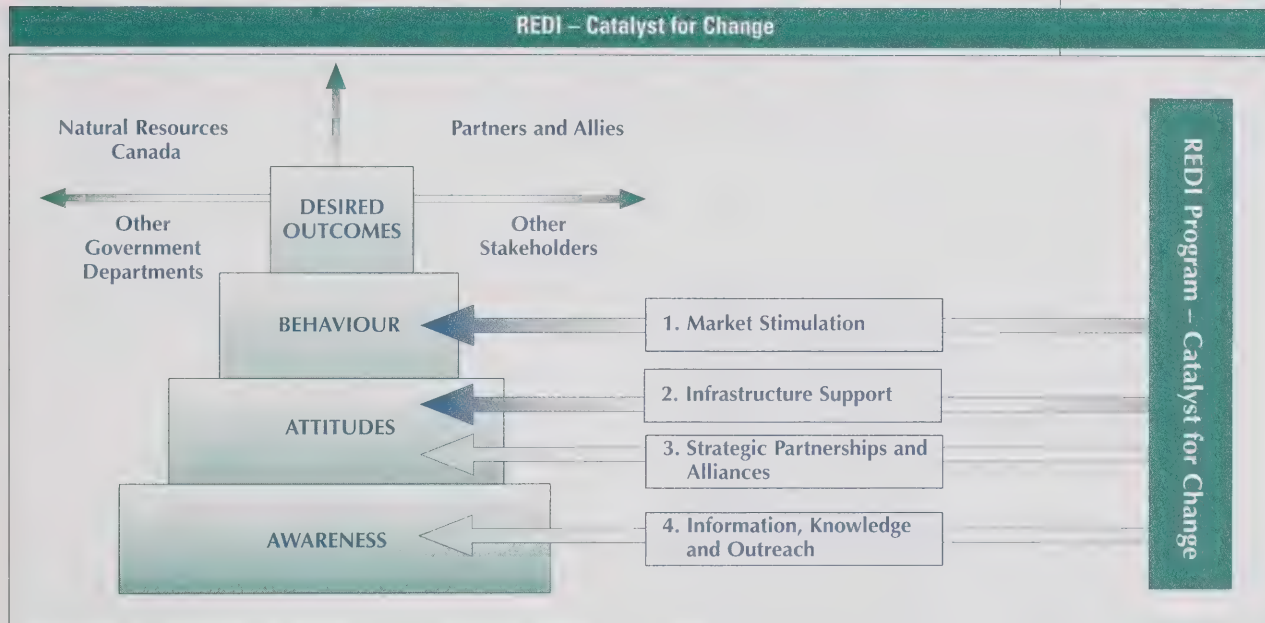


## REDI's Strategy: Priming the Green Heating and Cooling Market for Take-Off

### Our Strategic Thrusts: Aligning Activities With Results and Value for Money

REDI will pursue its vision, mission and target through four strategic thrusts and a new balance of priorities for the best return on REDI expenditures.

These four strategic thrusts support market take-off and transcend technologies and industries. They bring together the insights from the 2003 REDI evaluation and the 2004 industry consultations. They also reflect that the marketplace in which REDI has acted as a catalyst has evolved over the last six years.



Early in the program, it was important to focus on market development to effect changes in consumers' awareness of renewable energy solutions, and on infrastructure support to build industry capacity and market acceptance. REDI is now focusing on market stimulation with direct incentives while sustaining strategic partnerships and alliances as well as infrastructure support and knowledge sharing. The new balance reflects REDI's evolution.

### What Incentives Are Offered Under REDI?

Private sector corporations are eligible for a refund of 25 percent of the purchase and installation costs of a qualifying system, up to a maximum refund of \$80,000. This incentive is also available to federal departments and public institutions. Incentives for commercial-scale demonstration pilot projects in the residential sector are delivered by partners. In remote communities, the incentive rises to 40 percent (see [www.nrcan.gc.ca/redi](http://www.nrcan.gc.ca/redi)).

## **Strategic Thrust 1: Market Stimulation**

### **High Priority**

*To stimulate demand for GH&C products among end-users within priority target markets*

REDI will

- Increase incentives to influence GH&C penetration rates
- Launch commercial-scale pilot projects to demonstrate the viability of GH&C systems in the residential sector
- Experiment with other incentive options, such as performance-based incentives
- Encourage managers of federal facilities to use more GH&C technologies

#### **Expected Results**

- Increased GH&C market size and penetration of promising niche markets
- Greater GH&C contribution to energy savings and GHG emissions reductions
- Wide replications of GH&C pilot projects, and increased economies of scale
- Improved portfolio of incentive options and increased take-up of REDI for federal facilities

## **Strategic Thrust 2: Strategic Partnerships and Alliances**

### **Medium to High Priority**

*To sustain collaboration with existing GH&C industry partners and foster strategic alliances with target audiences, including Aboriginal and Northern communities*

REDI will

- Strengthen infrastructure through strategic partnerships and alliances
- Support organizations positioned to influence the uptake of GH&C systems
- Expand existing and develop new partnerships with organizations serving Northern and Aboriginal communities
- Encourage partners and allies to develop strategic plans to speed GH&C growth
- Support the development and self-sufficiency of GH&C networks
- Establish formal coordination mechanisms with other federal facilities and technology transfer programs

#### **Expected Results**

- Increased participation of energy utilities and expansion of the CGC marketing model
- More targeted partnerships and alliances evaluated, based on a new performance framework
- Emergence of networks of GH&C champions across governments, industries and communities
- Integration of GH&C in the Canadian energy strategy and supply mix
- Systematic collaboration of REDI with NRC's OEE and CETC and other federal departments



### Strategic Thrust 3: Infrastructure Support

#### Medium Priority

*To strengthen the capacity of renewable energy industries and infrastructure in the supply, delivery and servicing of quality GH&C products*

REDI will

- Support training of the supply chain
  - technicians, installers, dealers, etc.
  - architects, designers, engineers, etc.
  - developers, insurers, lenders, etc.
- Update simulation software and other tools to improve project feasibility analysis
- Assist in the development of standards and certification protocols for GH&C systems
- Develop and implement a renewable energy training strategy and action plan for the Canadian community college network

#### Expected Results

- Increased awareness of GH&C systems among targeted stakeholders and increased recommendations for the adoption of GH&C systems
- Increased availability of software and other tools for design simulation and decision support
- More up-to-date standards, certification protocols and reliable GH&C installations
- Increased number of courses delivered and increased number of trained technologists, technicians and installers



## **Strategic Thrust 4: Information, Knowledge and Outreach** **Low to Medium Priority**

*To improve awareness, knowledge and understanding of the markets and benefits of GH&C technologies*

REDI will

- Undertake market research on consumer needs, attitudes and motivation
- Systematically collect, analyse and report on the GH&C industry and its systems and markets
- Support promotional activities of partners and allies to expand consumers' knowledge and understanding of GH&C attributes and related opportunities
- Carry on with publication, Internet and other communications activities, such as
  - seminars, workshops and publications
  - electronic REDI project management
  - promotional materials and events

### **Expected Results**

- Up-to-date and accurate market segmentation
- Up-to-date and accurate statistics on GH&C market size, potential and growth trends
- Increased awareness of the benefits of GH&C solutions among decision-makers and the public
- Increased on-line access to REDI's products and services
- Greater uptake of GH&C by governments, businesses, communities and individual Canadians





## 5

## REDI's Action Plan: Putting the Strategy Into Action

The four strategic thrusts will be implemented through REDI's Operational Action Plan.

This plan, summarized in the table below, shows key activities, targeted outputs and related lead players with corresponding outcomes for April 1, 2004, to March 31, 2007.

REDI in Action: GH&C Industry Infrastructure		
Key Activities	Targeted Outputs and Related Lead Players, 2004 to 2007	Outcomes
<b>Strategic Thrust 1: Market Stimulation – to stimulate demand for GH&amp;C products among end-users within priority target markets – Priority: High</b>		
1.1 Direct financial incentives 1.2 Commercial-scale residential pilots 1.3 Performance-based pilot projects 1.4 Higher uptake of REDI for federal facilities	– Eight pilot projects (NRCan) – Install 600 active solar thermal and biomass combustion systems (NRCan) – Install 6000 GSHP systems (CGC)	<b>Increased GH&amp;C market size and reduced GHG emissions</b>
<b>Strategic Thrust 2: Strategic Partnerships and Alliances – to sustain collaboration with existing GH&amp;C industry partners and foster strategic alliances with target audiences, including Aboriginal and Northern communities – Priority: Medium to High</b>		
2.1 Assistance to existing and new value-adding partnerships and alliances 2.2 Support of emerging coalitions and networks of renewable energy champions 2.3 Business planning by partners and allies 2.4 Coordination with building programs	– Partnership with Canadian GeoExchange Coalition – Two new partnerships, including alternative delivery (NRCan) – Maintenance of existing partnerships (NRCan) – New partnership performance framework (NRCan) – Systematic collaboration with the OEE, CETC, etc., particularly about the built environment (NRCan)	<b>Value-added strategic partnerships and alliances</b>
<b>Strategic Thrust 3: Infrastructure Support – to strengthen the capacity of renewable energy industries and infrastructure in the supply, delivery and servicing of quality GH&amp;C products – Priority: Medium</b>		
3.1 Suppliers' and facilitators' training 3.2 Simulation software and tools update 3.3 Standards/certification protocols update 3.4 Renewable energy training strategy and action plan	– One new Canadian Standards Association (CSA) standard (GH&C, Industry) – Update of software tools (Industry) – Number of trained practitioners and public (Industry) – Number of accredited designers/installers (Industry) – 40 design and installation workshops (NRCan) – RETScreen® workshops (NRCan-CETC) – Number of renewable energy courses developed and delivered at colleges (ACCC)	<b>Stronger GH&amp;C infrastructure and improved talent pool of skilled GH&amp;C practitioners</b>

# REDI in Action: GH&C Industry Infrastructure (continued)

Key Activities	Targeted Outputs and Related Lead Players, 2004 to 2007	Outcomes
<b>Strategic Thrust 4: Information, Knowledge and Outreach – to improve awareness, knowledge and understanding of the markets and benefits of GH&amp;C technologies – Priority: Low to Medium</b>		
4.1 End-users' market research 4.2 Data analysis and reporting 4.3 Promotion and awareness 4.4 Communications activities	<ul style="list-style-type: none"> <li>– Three market studies, three surveys and three annual reports</li> <li>– Ten new marketing materials and 12 awareness workshops</li> <li>– Forty conferences, trade shows and seminars</li> <li>– Annual increase of 10 percent in requests for information</li> <li>– Increase of 400 percent in applications for REDI financial incentives</li> </ul>	<b>Increased number of users and increased market awareness among REDI target audiences</b>





## 6

## Innovative Leadership: Changing the Way We Manage REDI

### Organizing to Deliver Results

The Renewable and Electrical Energy Division's (REED's) organizational structure and its business functions have been streamlined to enable it to support REDI. These changes respond to recommendations made in the 2003 program evaluation and the 2004 stakeholder consultations, referred to below.

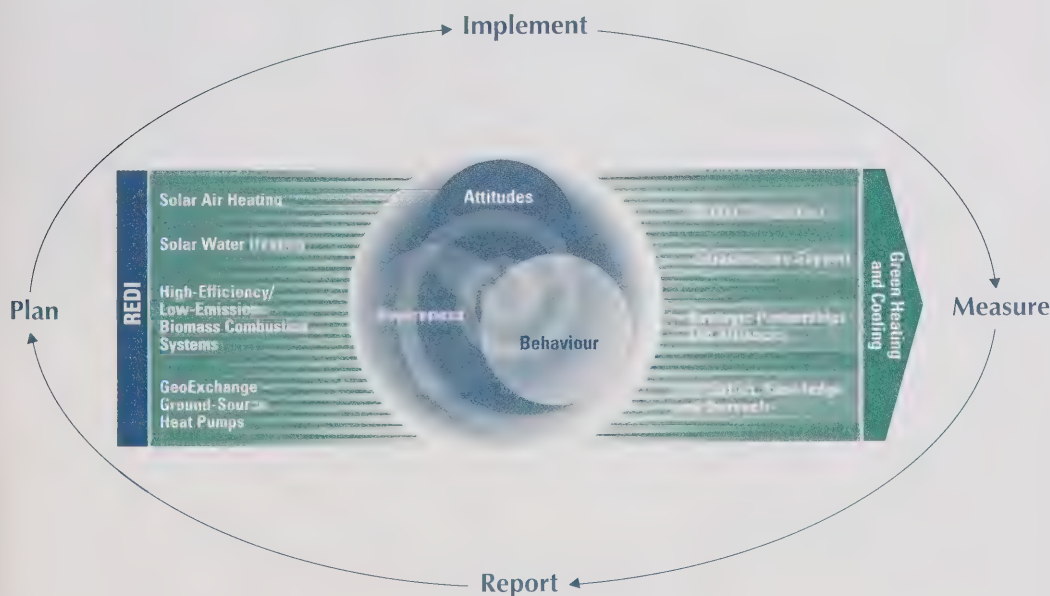
This program evaluation is accessible at [www2.nrcan.gc.ca/dmo/aeb/English/ReportDetail.asp?x=244&type=rpt](http://www2.nrcan.gc.ca/dmo/aeb/English/ReportDetail.asp?x=244&type=rpt). It revealed, among other things, that the program spending was consistent with its objectives. It also pointed to areas of improvement (shown in the box at right). In 2004, REED commissioned the services of The Conference Board of Canada to conduct stakeholder consultations. The Conference Board sought inputs from industry associations, including CANBIO, EESC, CGC and CanSIA, on REDI's objectives, the policy context for renewable energy and GH&C, market development activities, industry infrastructure activities and incentives.

Program changes have already been made to implement most of the recommendations. The other recommendations will be addressed through the implementation of this strategic plan.

### Program Evaluation Recommendations

1. Need to update the program rationale and objectives
2. Need to develop a business plan with resources to measure performance
3. Consider phasing out incentives for biomass and assessing the effectiveness of solar incentives
4. More formal integration with other related NRCan programs and consultation on "one-stop shopping" approaches
5. Consider incentives for the residential sector and other renewable energy forms
6. Enhance the stability of the program's organizational environment

### REDI's Strategic Management Framework



This first formal REDI Strategic Business Plan 9-51 constitutes a stepping stone that integrates program activities within a framework of accountability for results and strategic planning.

Within the planning, implementing, measuring and reporting continuum (shown on page 15), progress and performance will be monitored and reported against REDI's four strategic thrusts. Information will be analysed to allow timely internal and external program evaluation.

## **Improving Our Performance Planning, Monitoring and Reporting**

### ***First Strategic Business Plan: Priming the GH&C Market for Take-Off***

This first REDI Strategic Business Plan 9-51 articulates a strategy-focused approach that is more reflective of stakeholders' expectations and integral to their success. It builds on REDI's accomplishments over the past six years while aligning itself with Government of Canada and departmental priorities. The resulting strategic fit will strengthen the long-term planning exercise to be initiated in early 2005–2006.

### ***Redesigned Terms and Conditions***

REDI's terms and conditions have been revised to achieve the following changes:

- Reinstatement of evacuated tubes systems under specific performance eligibility criteria;
- Declining incentive for biomass combustion systems from 25 percent in 2004–2005 to 15 percent in 2005–2006 and 10 percent in 2006–2007;
- Removal of the exclusion of eligible systems used for industrial process purposes (capital cost allowance, Class 43.1, *Income Tax Regulations*);
- Initiation of incentives for commercial-scale pilot projects in the residential sector; and
- Experimentation with heat production and feasibility study incentives.

### ***Performance Management and Reporting***

REDI will produce three annual reports. The REDI Operational Action Plan in Section 5 and the specific outcomes and targets in the plan provide the framework for these reports. The reports will show how results match the targets for each strategic thrust. Comparisons with previous years will also be provided. REDI audits and evaluations will be undertaken in a timely manner to assist in the consideration of program extension. In addition, success will be assessed against the overall desired outcomes.



## Resources Allocation

REED will be re-organized to clarify responsibility and accountability for REDI program delivery. Funding will support partnerships with organizations positioned to expand the market for GH&C systems and resources.

Contributions to partners will, however, be limited over the next three years. A partnership evaluation framework will be applied to all industry associations and allies wishing to partner with REED under REDI, in order to determine the value of invested public money. The table on page 18 illustrates the estimated budget allocation by strategic thrust.

Overall Desired Result	Target (to March 2007)
System uptake estimate	Projected installations of 600 active solar thermal systems and biomass combustion systems along with 6000 GSHP systems
Energy savings estimate	2.55 million GJ (for the three years, based on anticipated funding to 2007)
GHG emissions reduction estimate	0.284 megatonnes of CO <sub>2</sub> equivalent (for the three years, based on anticipated funding to 2007)



**REDI Budget Estimate for 2004–2007 (\$000)**

	2004–2005	2005–2006	2006–2007	Three-Year Total
<b>Market Stimulation</b>				
Incentives	\$3,000	\$3,000	\$3,085	\$9,085
Pilot projects	190	600	300	1,090
Professional and other services	150	100	40	290
<b>Subtotal</b>	<b>3,340</b>	<b>3,700</b>	<b>3,425</b>	<b>10,465</b>
<b>Strategic Partnerships and Alliances</b>				
Existing				
– CGC (GeoExchange)	1,875	1,700	0	3,575
– Other	525	425	235	1,185
New	25	100	100	225
<b>Subtotal</b>	<b>2,425</b>	<b>2,225</b>	<b>335</b>	<b>4,985</b>
<b>Infrastructure Strengthening</b>				
Memoranda of agreement for services (OEE, CETC, etc.)	554	380	310	1,244
Training pilot projects	40	41	20	101
Tools and applications development	40	60	15	115
Standards development and update (CSA)	30	40	30	100
Solar domestic water-heating system – Certification support	30	100	0	130
Professional and other services	150	40	20	210
<b>Subtotal</b>	<b>844</b>	<b>661</b>	<b>395</b>	<b>1,900</b>
<b>Information, Knowledge and Outreach</b>				
Reprint, warehousing and distribution	110	40	20	170
Market research and program audits	30	90	110	230
Data collection, analysis and reporting	70	100	20	190
Publications and Web site upgrade	25	13	26	64
Promotion and communications	80	15	10	105
Professional and other services	150	35	10	195
<b>Subtotal</b>	<b>465</b>	<b>293</b>	<b>196</b>	<b>954</b>
<b>Program Management and Support</b>				
Salaries and benefits	708	708	578	1994
Corporate tax and accommodation	420	400	134	954
<b>Subtotal</b>	<b>1,128</b>	<b>1,108</b>	<b>712</b>	<b>2,948</b>
<b>Total Proposed Amount</b>	<b>\$8,202</b>	<b>\$7,987</b>	<b>\$5,063</b>	<b>\$21,252</b>





## Looking Forward: In Pursuit of Green Heating and Cooling Market Transformation

Increases in Canadian population, households and related floor space represent opportunities for GH&C. Canadians continue to spend billions annually to heat and cool homes and offices and for industrial processes. This represents a huge technical-economic potential for clean biomass, active solar thermal and geoechange, yet to be fully tapped.

The deployment of GH&C systems helps to displace conventional energy sources, such as gas, oil and electricity. The increased use of GH&C systems can translate into greater reductions of GHG emissions, particularly in the built environment. This will promote sustainable economic development, communities and employment. It will also foster sustainable resources use, enable wealth creation and, above all, improve the health and comfort of Canadians.

Therefore, GH&C systems contribute to Canada's climate change policy goals and strategic commitments to implement the Kyoto Protocol. The systems improve consumers' choice and confidence in renewable energy solutions while consolidating Canada's energy security and export capacity. While the uptake of GH&C is increasing, and GH&C industries are expanding their capacity, infrastructure challenges and other persisting barriers remain. More work needs to be done to achieve the technical-economic potential of viable GH&C options.

In 2005–2006, a business case will be made for an extended REDI program. Alternative delivery mechanisms will be explored for a stronger impact on GH&C market transformation. REDI's priorities will build on past experiences and lessons learned to move Canadian GH&C forward.

Above all, REDI's legacy will be achieved when the GH&C market is primed for take-off and transformed to significantly contribute to an integrated Canadian energy mix.







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